IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of: §
    Donald F. Gordon et al. §
 § Group Art Unit: 2617
 §
Serial No.: 09/679,210 §
 §
Confirmation No.: 8170 §
 § Examiner: Shang, Annan Q
Filed: 10/04/2000 §
 §
For: METHOD AND SYSTEM §
    FOR MULTICAST USING §
    MULTIPLE TRANSPORT §
    STREAMS §

13

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Dear Sir:

APPEAL BRIEF

Appellants submit this Appeal Brief to the Board of Patent Appeals and
Interferences on appeal from the decision of the Examiner of Group Art Unit 2617,
mailed June 20, 2005, finally rejecting claims 1-23. The final rejection of claims 1-23 is
appealed. This Appeal Brief is believed to be timely filed by the due date of November
13, 2005, as set by filing a Notice of Appeal on September 13, 2005. The Commissioner
is authorized to charge the $500 Appeal Brief filing fee, and any additional fees required
to make this Appeal Brief timely and acceptable to the Office, to counsel's Deposit
Account No. 20-0782/SEDN/246CIP1.

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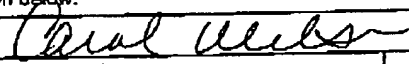01 FC:2402 250.00 DA

TRANSMITTAL FORM

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Application Number	09/679,210
Filing Date	October 4, 2000
First Named Inventor	Gordon
Art Unit	2617
Examiner Name	Annan Q. Shang
Attorney Docket Number	SEDN/246CIP1 (19880-28.1)

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Typed or printed name	Carol Wilson	Date 11-14-0

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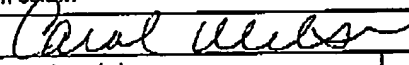*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

TABLE OF CONTENTS

(i) Real party in interest

The present application has been assigned to Sedna Patent Services, LLC of Philadelphia, Pennsylvania.

(ii) Related appeals and interferences

Appellants assert that no other appeals or interferences are known to the Appellants, the Appellants' legal representative, or assignee, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(iii) Status of claims

Claims 1-18 and 20-23 are currently pending. Claim 19 was cancelled in the Response dated February 28, 2005. Claims 1-18 and 20-23 were rejected in the Final Office Action dated June 20, 2005. Claims 1-18 and 20-23 are appealed and are listed in the Appendix.

(iv) Status of amendments

No claims were amended after final.

(v) Summary of claimed subject matter

Overview

The present invention relates to communication systems in general. More specifically, the invention relate to techniques to efficiently deliver an interactive program guide (IPG) in a server-centric information distribution system, such as a cable television system.

The claimed invention provides various techniques to effectively and efficiently deliver the IPG. In accordance with the multicasting techniques of the present invention, a varying number of transport streams can be generated and used to serve a distribution node having time varying demands. Multiple transport streams can provide additional transmission capacity (i.e., more bandwidth) and can also accommodate a larger number of packet identifiers (PIDs), which is especially useful for a demand-cast system during periods of heavy demands. The particular number of transport streams to be provided to the distribution node can be based on the actual needs of the node and, in accordance with an aspect of the invention, can be dynamically adjusted. Thus, additional transport streams to be provided to the distribution node can be based on the actual needs of the node and, in accordance with an aspect of the invention, can be dynamically adjusted. Thus, additional transport streams can be sent to the distribution node as demands increase, with more transport streams being provided during periods of heavy demands.

An embodiment of the invention provides a system for delivering an IPG, including a number of encoding units, at least one transport stream generator, and a session manager. The encoding units encode a number of IPG pages and generate a number of data streams, e.g., guide, video, audio, and data streams, with each stream being assigned a respective packet identifier (PID). Each transport stream generator receives and multiplexes selected ones f the streams from one or more encoding units into one or more transport streams. The session manager directs each transport stream generator to generate one or more transport streams based on usage. The system may further include a bandwidth manager that monitors usage and reports the usage to the session manager.

The encoding units can be operated to encode only once each IPG page to be transmitted from the system. Also, each encoding unit can perform slice-based or picture-based encoding of the IPG. Each transport stream generator can be operated t provide differentiated IPG for the neighborhood being served by the transport stream generator.

The number of transport streams generated by each transport stream generator can be dynamically adjusted based on demands from the neighborhood being served by the transport stream generator. Each transport stream generator can be directed to generate an additional transport stream if usage exceeds the capacity provided by the currently transmitted transport streams. Correspondingly, a particular transport stream can be torn down, if usage falls below the capacity of remaining transport streams.

Various multiplexing structures can also be used. When multiple transport streams are employed, the IPG pages for the transport streams can be organized to reduce the likelihood of switching between transport streams at a receiving device, and to increase the likelihood of PID transitions within the same transport stream.

Claimed embodiments of the invention provide a method and system for providing an IPG. (See Applicants' Specification, title, abstract, and summary on page 1, line 17 to page 2, line 29).

Claim 1

Applicants' Specification provides support for embodiments of independent claim 1, including the exemplary support listed below.

> 1. A system for providing interactive program guide (IPG), comprising:
> a plurality of encoding units operative to encode a plurality of IPG pages
> and generate a plurality of streams, wherein each IPG page is associated with a
> stream and is assigned a respective packet identifier (PID);

(See Applicants' Specification, Figures 1A and 1B, bank of encoding and packetizing units 120, encoding and packetizing units 122a...122n; Figure 2A, transport stream 202; Figure 2B, transport stream 1...4 204a...204d; Figure 2C, transport stream 1...4 206a...206d; page 2, lines 29-33; page 5, line 18 to page 6, line 9; page 7 line 26 to page 8, line 8; page 11, lines 22-25).

at least one transport stream generator operatively coupled to the plurality
of encoding units, each transport stream generator operative to receive and
multiplex selected ones of the plurality of streams from one or more encoding
units into one or more transport streams; and

(See Applicants' Specification, Figure 1A, transport stream generator 130a...130m, bank of
encoding and packetizing units 120, encoding and packetizing units 122a...122n; Figure 1B,
transport stream generator 1...n 126a...126n, encoder unit; Figure 2A, transport stream 202;
Figure 2B, transport stream 1...4 204a...204d; Figure 2C, transport stream 1...4 206a...206d;
page 6, lines 10-30; page 8, lines 9-18 and 24-34; page 9, line 14 to page 112, line 21; page 11,
line 25 to page 12, line 2).

a session manager coupled to the at least one transport stream generator
and operative to direct each transport stream generator to generate the one or
more transport streams based on usage.

(See Applicants' Specification, Figures 1A and 1B, session manager 112; Figure 2A, transport
stream 202; Figure 2B, transport stream 1...4 204a...204d, Figure 2C, transport stream 1...4
206a...206d; page 6, line 31 to page 7 line 7; and page 9, lines 1-8).

Claim 18

Applicants' Specification provides support for embodiments of independent claim 18,
including the exemplary support listed below.

18. A system for providing interactive program guide (IPG), the system
comprising:
at least one transport stream generator, each transport stream generator
including at least one encoder unit operative to encode a plurality of IPG pages
and generate a plurality of streams, wherein each of the plurality of streams
generated for the plurality of IPG pages is assigned a respective packet identifier
(PID), each transport stream generator operative to generate one or more transport
streams having included therein the plurality of streams generated for the plurality
of encoded IPG pages;

(See Applicants' Specification, Figure 1A, transport stream generator 130a...130m, bank of
encoding and packetizing units 120, encoding and packetizing units 122a...122n; Figure 1B,
transport stream generator 1...n 126a...126n, encoder unit; Figure 2A, transport stream 202;
Figure 2B, transport stream 1...4 204a...204d; Figure 2C, transport stream 1...4 206a...206d;

page 6, lines 10-30; page 8, lines 9-18 and 24-34; page 9, line 14 to page 112, line 21; page 11, line 25 to page 12, line 2).

> a session manager coupled to the at least one transport stream generator and operative to direct each transport stream generator to generate the one or more transport streams based on usage.

(See Applicants' Specification, Figures 1A and 1B, session manager 112; Figure 2A, transport stream 202; Figure 2B, transport stream 1...4 204a...204d, Figure 2C, transport stream 1...4 206a...206d; page 6, line 31 to page 7 line 7; and page 9, lines 1-8).

Claim 20

Applicants' Specification provides support for embodiments of independent claim 20, including the exemplary support listed below.

> 20. A method for providing interactive program guide (IPG) from a transmission source to a plurality of terminals, the method comprising:
> monitoring demands from the plurality of terminals;

(See Applicants' Specification, Figures 1A and 1B, terminals 108; page 5, lines 6-17; page 7, lines 8-26; page 9, lines 9-13).

> determining a current capacity of one or more transport streams carrying IPG pages of said IPG to the plurality of terminals, each page of said IPG having an assigned packet identifier (PID);

(See Applicants' Specification, Figure 2A, transport stream 202; Figure 2B, transport stream 1...4 204a...204d, Figure 2C, transport stream 1...4 206a...206d; Figures 1A and 1B, terminals 108; page 5, lines 6-17; page 7, lines 8-26; page 9, lines 9-13).

> comparing the demands from the plurality of terminals against the current capacity; and

(See Applicants' Specification, Figures 1A and 1B, terminals 108; page 5, lines 6-17; page 7, lines 8-26; page 9, lines 9-13).

> dynamically adjusting the number of transport streams to be transmitted to the plurality of terminals based on a result of the comparing.

(See Applicants' Specification, Figure 2A, transport stream 202; Figure 2B, transport stream 1...4 204a...204d, Figure 2C, transport stream 1...4 206a...206d; page 5, lines 6-17; page 7, lines 8-26; page 9, lines 9-13).

(vi) Grounds of rejection to be reviewed on appeal

1. Whether claims 1-15, 18, and 20-23 are patentable under 35 U.S.C. §103(a) over U.S. Patent No. 6,401,242 to Eyer et al. ("Eyer242") and U.S. Patent No. 5,801,753 to Eyer ("Eyer753") in view of U.S. Patent No. 6,463,585 to Hendricks et al. ("Hendricks) and further in view of U.S. Patent No. 5,515,106 to Chaney et al. ("Chaney").

2. Whether claims 16 and 17 are patentable under 35 U.S.C. §103(a) over Eyer242 in view of Hendricks and further in view of Chaney as applied to claim 1 and further in view of U.S. Patent No. 5,867,208 to McLaren ("McLaren").

(vii) Argument

1. Claims 1-15, 18, and 20-23 are patentable under 35 U.S.C. §103(a) over the combination of Eyer242, Eyer753, Hendricks, and Chaney.

The Office Action rejected claims 1-15 and 18-23 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,401,242 to Eyer et al. ("Eyer242") in view of U.S. Patent No. 6,463,585 to Hendricks et al. ("Hendricks") and further in view of U.S. Patent No. 5,515,106 to Chaney et al. ("Chaney"). The Office Action also cited to U.S. Patent No. 5,801,753 to Eyer et al. ("Eyer753") and erroneously stated that it was incorporated by reference in Eyer242. As a result, the rejection is actually over the combination Eyer242/Hendricks/Chaney/Eyer753.

"If the examination at the initial stage does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent." *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir 1992). MPEP § 2143, Basic Requirements of a Prima Facie Case of Obviousness, states:

> To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). See MPEP §2143.03.

The Office Action failed to establish a *prima facie* case of obviousness, because the combination of Eyer242/Hendricks/Chaney/Eyer753 fails to teach or suggest all of the claim elements. For example, the combination of Eyer242/Hendricks/Chaney/Eyer753 fails to teach or suggest the claimed session manager coupled to a transport stream generator and the transport stream generator coupled to encoding units.

Claim 1

Claim 1 recites, *inter alia*, "A system for providing interactive program guide (IPG), the system comprising: a plurality of encoding units ... at least one transport stream generator operatively coupled to the plurality of encoding units ...; and a session manager coupled to the at least one transport stream generator".

Eyer242 fails to disclose the claimed session manager coupled to a transport stream generator and the transport stream generator coupled to encoding units. Eyer242 is generally directed to a method and apparatus for designating a preferred source to avoid duplicate programming services. The Office Action erroneously states that the claimed encoding units are met by Eyer242's MPEG-2 encoders 1-N 220, 230, the claimed transport stream generator is met by Eyer242's MUX/MOD 250, and that the claimed session manager is met by Eyer242's IPG Translator (IPGT) 220 and Subscriber Authorization Center (SAC) 240. The problem is that neither IPGT 220 nor SAC 240 are coupled to MUX/MOD 250. Those elements are shown in Figure 2 and described in col. 7, line 66 to col. 8, line 32. Figure 2 shows only the lines from the MPEG-2 encoders 1-N 220, 230 to MUX/MOD 250. Figure 2 does not show any lines from IPGT 220 or SAC 240 to MUX/MOD 250.

Hendricks, Chaney and Eyer752 each fail to disclose the claimed session manager coupled to a transport stream generator and the transport stream generator coupled to encoding units. In Hendricks, Figures 7 and 21a fail to show the claimed session manager coupled to any transport stream generator. Figure 7 of Hendricks shows processing 496 with a line to scheduler 497, which has a line to multiplex 498, which has a line to transmission 499. Figure 21a of Hendricks shows a MUX 248 with only a line to local insert 246 and MOD 250. In Chaney, Figure 2 shows a transmit

element that fails to disclose the claimed session manager coupled to a transport stream generator and the transport stream generator coupled to encoding units. Figure 1 of Eyer752 shows elements for generating an IPG stream that fails to disclose the claimed session manager coupled to a transport stream generator and the transport stream generator coupled to encoding units.

Therefore, claim 1 is patentable over the combination of Eyer242/Hendricks/ Chaney/Eyer753.

Claims 2-14 depend, directly or indirectly, from claim 1 and, thus, inherit the patentable subject matter of claim 1, while adding additional elements. Therefore, claims 2-14 are also patentable over the combination of Eyer242/Hendricks/ Chaney/Eyer753 under §103.

Claim 18

Claim 18 recites, *inter alia*, "A system for providing interactive program guide (IPG), the system comprising: at least one transport stream generator, each transport stream generator including at least one encoder unit ...; a session manager coupled to the at least one transport stream generator". For the same reasons given above with respect to claim 1, claim 18 is patentable over the combination of Eyer242/Hendricks/ Chaney/Eyer753 under §103.

Claim 19 depends from claim 18 and, thus, inherits the patentable subject matter of claim 18, while adding additional elements. Therefore, claim 19 is also patentable over the combination of Eyer242/Hendricks/ Chaney/Eyer753 under §103.

Claim 20

Claim 20 recites, *inter alia*, "A method for providing interactive program guide (IPG) from a transmission source to a plurality of terminals, the method comprising: ... comparing the demands from the plurality of terminals against the current capacity; and dynamically adjusting the number of transport streams to be transmitted to the plurality of terminals based on a result of the comparing". In other words, the number of transport streams transmitted from the transmission source to the terminals is dynamically adjusted in claim 20. By contrast, Eyer242 discloses a subscriber terminal,

such as a set top box or integrated receiver-decoder (IRD). (Eyer242, col. 1, lines 40-41). Channel map data is delivered to the IRDs so that bundles of IRD data can be filtered out using firmware filtering to discard program sources that are not present in the channel map. (Eyer242, abstract). If, in fact, Eyer242 disclosed the claimed dynamic adjusting of the transport streams to be transmitted to the terminals, there would be no need for the filtering of bundles performed at the IRD (terminal) of Eyer242, which is the intended purpose of Eyer242. Eyer242 fails to disclose the claimed transport streams being dynamically adjusted before being transmitted to the terminals. Hendricks, Chaney and Eyer752 each also fail to disclose these elements of claim 20. Therefore, claim 20 is patentable over the combination of Eyer242/Hendricks/ Chaney/Eyer753 under §103.

Claims 21-23 depend, directly or indirectly, from claim 20 and, thus, inherit the patentable subject matter of claim 20, while adding additional elements. Therefore, claims 21-23 are also patentable over the combination of Eyer242/Hendricks/ Chaney/Eyer753 under §103.

2. *Claims 16 and 17 are patentable under 35 U.S.C. §103(a) over the combination of Eyer242, Hendricks, Chaney, and McLaren.*

The Office Action rejected claims 16 and 17 under 35 U.S.C. §103(a) as being unpatentable over Eyer242 in view of Hendricks and further in view of Chaney, as applied to claim 1 above, and further in view of U.S. Patent No. 5,867,208 to McLaren ("McLaren").

Claims 16 and 17 depend from claim 1 and, thus, inherit the patentable subject matter of claim 1. For the reasons given above with respect to claim 1, claims 16 and 17 are also patentable over the combination of Eyer242/Hendricks/ Chaney. Furthermore, McLaren fails to disclose the claimed session manager coupled to a transport stream generator and the transport stream generator coupled to encoding units. Therefore, claims 16 and 17 are also patentable over the combination of Eyer242/Hendricks/Chaney/McLaren.

CONCLUSION

Applicants respectfully request that the Board reverse the rejections and pass the claims to allowance.

Respectfully submitted,

11/14/05

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(viii) Claims appendix

1. (Previously presented) A system for providing interactive program guide (IPG), the system comprising:

a plurality of encoding units operative to encode a plurality of IPG pages and generate a plurality of streams, wherein each IPG page is associated with a stream and is assigned a respective packet identifier (PID);

at least one transport stream generator operatively coupled to the plurality of encoding units, each transport stream generator operative to receive and multiplex selected ones of the plurality of streams from one or more encoding units into one or more transport streams; and

a session manager coupled to the at least one transport stream generator and operative to direct each transport stream generator to generate the one or more transport streams based on usage.

2. (Original) The system of claim 1, further comprising:

a bandwidth manager coupled to the plurality of encoding units and the session manager, the bandwidth manager operative to monitor usage and report to the session manager.

3. (Original) The system of claim 1, wherein the plurality of encoding units are operative to encode only once each IPG page to be transmitted from the at least one transport stream generator.

396486-1

4. (Original) The system of claim 1, wherein the number of transport streams generated by each transport stream generator is dynamically adjusted based on demands from a neighborhood being served by the transport stream generator.

5. (Original) The system of claim 1, wherein the session manager directs a particular transport stream generator to generate an additional transport stream as usage increases and exceeds the capacity of currently transmitted transport stream(s).

6. (Original) The system of claim 1, wherein the session manager directs a particular transport stream generator to generate an additional transport stream if the number of streams to be transmitted by the particular transport stream generator exceeds the capacity of currently transmitted transport stream(s).

7. (Original) The system of claim 1, wherein the session manager directs a particular transport stream generator to generate an additional transport stream if a required number of PIDs exceeds a maximum number of PIDs supported by currently transmitted transport stream(s).

8. (Original) The system of claim 1, wherein the session manager directs a particular transport stream generator to tear down a transport stream if usage falls below the capacity of remaining transport streams.

396486-1

9. (Original) The system of claim 1, wherein each transport stream generator is operative to serve a respective group of terminals within a particular neighborhood.

10. (Original) The system of claim 1, wherein each transport stream generator is operable to provide differentiated IPG via the one or more transport streams generated by the transport stream generator.

11. (Original) The system of claim 1, wherein a plurality of transport streams are generated by a particular transport stream generator, and wherein each of the plurality of transport streams includes a respective set of IPG pages.

12. (Original) The system of claim 11, wherein the plurality of transport streams from the particular transport stream generator include overlapping sets of IPG pages.

13. (Original) The system of claim 11, wherein each of the plurality of transport streams from the particular transport stream generator includes one or more common IPG pages.

14. (Original) The system of claim 11, wherein the sets of IPG pages for the plurality of transport streams from the particular transport stream generator are organized to reduce likelihood of switching between transport streams at a receiving device.

396486-1

15. (Original) The system of claim 11, wherein the sets of IPG pages for the plurality of transport streams from the particular transport stream generator are organized to increase likelihood of PID transitions within the same transport stream.

16. (Original) The system of claim 1, wherein each encoding unit is operative to implement a slice-based encoding scheme.

17. (Original) The system of claim 1, wherein each encoding unit is operative to implement a picture-based encoding scheme.

18. (Previously presented) A system for providing interactive program guide (IPG), the system comprising:

at least one transport stream generator, each transport stream generator including at least one encoder unit operative to encode a plurality of IPG pages and generate a plurality of streams, wherein each of the plurality of streams generated for the plurality of IPG pages is assigned a respective packet identifier (PID), each transport stream generator operative to generate one or more transport streams having included therein the plurality of streams generated for the plurality of encoded IPG pages;

a session manager coupled to the at least one transport stream generator and operative to direct each transport stream generator to generate the one or more transport streams based on usage.

396486-1

19. (Canceled)

20. (Previously presented) A method for providing interactive program guide (IPG) from a transmission source to a plurality of terminals, the method comprising:

monitoring demands from the plurality of terminals;

determining a current capacity of one or more transport streams carrying IPG pages of said IPG to the plurality of terminals, each page of said IPG having an assigned packet identifier (PID);

comparing the demands from the plurality of terminals against the current capacity; and

dynamically adjusting the number of transport streams to be transmitted to the plurality of terminals based on a result of the comparing.

21. (Original) The method of claim 20, further comprising:

providing an additional transport stream for the plurality of terminals if the demands exceeds the current capacity.

22. (Original) The method of claim 20, further comprising:

providing an additional transport stream for the plurality of terminals if a required number of packet identifiers (PIDs) exceeds a maximum number of PIDs supported by the one or more transport streams currently being transmitted.

23. (Original) The method of claim 20, further comprising:

396486-1

tearing down a particular currently transmitted transport stream if the demands

fall below the capacity of remaining transport streams.

(ix) Evidence appendix

None.

396486-1

(x) Related proceedings appendix

None.

(xi) List of references

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MPEP §2143.03, All Claim Limitations Must Be Taught or Suggested

Cases

In re Oetiker, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir 1992).

In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

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Other

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396486-1